N° 13,982 A.D. 1893

Date of Application, 19th July, 1893
Complete Specification Left, 18th Apr., 1894—Accepted, 19th May, 1894

PROVISIONAL SPECIFICATION.

Improved Apparatus for Enabling a Person to Breathe Fresh Air while Surrounded with a Poisonous or Noxious Atmosphere, more especially for Use in Saving Miners from being Suffocated by Choke Damp or After Damp.

I, CHARLES ADDISON ASH, of Meretown, Newport in the County of Salop, Agricultural Engineer, do hereby declare the nature of this invention to be as follows: –

This invention has for its object a simple and convenient apparatus, which may be readily and expeditiously put into use, by means of which any person may safely pass through, or remain a considerable time in, a poisonous or noxious atmosphere. The apparatus is, however, specially designed for the purpose of saving life in mines by enabling the miners to live whilst surrounded by choke damp or after damp resulting from an explosion.

An apparatus constructed according to this invention consists of a hood which is passed completely over the head and which fits around the neck, and of a portable air supply reservoir having a connection with the hood and a valve by which communication may be opened between the reservoir and the hood. The hood is conveniently formed of indiarubber or other soft material made sufficiently air tight for the purpose, and is formed with an opening at the bottom which is stretched to allow of the passage of the head therethrough and which then closes again around the neck. A pair of glass eye-pieces, or a single piece of glass, is fitted into the front of the hood through which the person using the apparatus can see his way. The reservoir is conveniently made of strong elastic tubing, such for instance as the tubing used for pneumatic tyres, coiled into a spiral form leaving an opening through the middle through which the arm of the person using the apparatus may be passed for facility in carrying the reservoir. The reservoir is kept permanently inflated with air so that it may be used at a moment's notice. A person requiring to use the apparatus can slip the hood over his head almost as quickly as putting on his hat, and immediately he turns on the valve and opens the connection between the reservoir and the hood he is supplied with fresh air in any quantity he requires. The hood may be fitted with a valve which opens outwards through which the foul air breathed out from the lungs can escape.

Dated this 18th day of July 1893.

STEPHEN WATKINS,
Wolverhampton, Agent for the Applicant.

COMPLETE SPECIFICATION.

Improved Apparatus for Enabling a Person to Breathe Fresh Air while Surrounded with a Poisonous or Noxious Atmosphere, more especially for Use in Saving Miners from being Suffocated by Choke Damp or After Damp.

I, CHARLES ADDISON ASH, of Meretown, Newport in the County of Salop, Agricultural Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has for its object a simple and convenient apparatus, which may

[*Price 8d.*]

be readily and expeditiously put into use, by means of which any person may safely pass through, or remain a considerable time in, a poisonous or noxious atmosphere. The apparatus is, however, specially designed for the purpose of saving life in mines by enabling the miners to live whilst surrounded by choke damp or after damp resulting from an explosion.

An apparatus constructed according to this invention consists of a hood which is passed completely over the head and which fits around the neck, and of a portable air supply reservoir having a connection with the hood and a valve by which communication may be opened between the reservoir and the hood. The hood is conveniently formed of indiarubber, or it may be of other material made sufficiently air-tight for the purpose, and is formed with an opening at the bottom which is stretched to allow of the passage of the head of the wearer therethrough and which then closes again around the neck. A pair of glass eye-pieces, or a single piece of glass, is fitted into the front of the hood through which the person using the apparatus can see his way. The reservoir is conveniently made of strong elastic tubing coiled into a spiral form leaving an opening through the middle through which the arm of the person using the apparatus may be passed for facility in carrying the reservoir; or according to a simple construction it may be formed somewhat of the shape of a life buoy, that is to say, as an annular bag surrounding a central opening through which the arm may be passed. The reservoir is kept permanently inflated with air so that it may be used at a moment's notice. A person requiring to use the apparatus can slip the hood over his head almost as quickly as putting on his hat, and immediately he turns on the valve and opens the connection between the reservoir and the hood he is supplied with fresh air in any quantity he requires. The hood may be fitted with a valve which opens outwards, through which the foul air breathed out from the lungs can escape.

In order that the invention may be clearly understood, I have appended hereto a sheet of illustrations, of which

Figure 1 represents the upper part of a man in the act of using the apparatus.

Figure 2 is a front view of the reservoir shewn in Figure 1; and

Figure 3 is a detached section, to an enlarged scale, through the outlet valve from the hood.

In Figure 1 the hood A is shewn in section. The main portion of the hood may be made of rubber stiffened with one two or more layers of canvas, but the lower portion thereof, from about the points *a a*, is made of soft and yielding material, such as soft indiarubber, which can be stretched open sufficiently to allow the head of the wearer to be readily inserted within the hood and which will then close around the neck sufficiently to exclude the foul air from entering the hood against the slight pressure of air within the hood, but which will be sufficiently easy and yielding around the neck not to interfere with the comfort of the user. The reservoir B, as shewn by Figures 1 and 2 consists conveniently of a rubber tube *b* strengthened with canvas, the tube being coiled round a hollow sheet metal core *c* and held thereto by a strap *d* passing around one side of the coil and through the core. The reservoir may be held by passing the hand or forearm into the hollow of the core *c*. In Figure 1 the reservoir is shewn to be immediately in front of the user, for convenience of illustration. It may, however, be carried on the forearm and be somewhat sideways to the user. The outer end of the coil of the reservoir is fitted with a suitable air valve *e* through which it is charged with compressed air, and on to the outer end of this valve is coupled an air tube *f* which is connected at its other end with the hood A as shewn. The user can open the valve as much as may be necessary to give him the supply of air he requires in the hood. The front of the hood is fitted with a glass eye-piece *g*, or a pair of eye-pieces, and also with an outlet air valve *h*, which may be conveniently constructed, as shewn by Figure 3, as a rubber disc *i* which closes against a perforated seat *j*, and beats in opening against a curved beater *k*, the whole being contained within a perforated case *l* which is fitted to the hood.

In lieu of forming the reservoir as a coil as shewn in Figures 1 and 2, it may be formed as a rubber bag B^1, of the form shewn in elevation by Figure 4 and in section by Figure 5, an opening *m* being left through the middle through which the wearer may pass his arm; or the reservoir may consist of a rubber bag of other form, or may of course be of any other suitable material, such as sheet metal, and of any convenient shape. It should be provided with a handle or handles, or with an opening through it through which the hand or arm may be passed.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Apparatus for enabling a person to breathe fresh air while surrounded with a poisonous or noxious atmosphere, more especially for use in saving miners from being suffocated by choke damp or after damp, which consists of a hood constructed to be capable of being readily drawn over the head of the wearer and of fitting around the neck with sufficient accuracy as above defined, and of a reservoir for compressed air connected with the hood and fitted with a suitable valve for admitting and regulating the supply of air to the hood, substantially as described.

2. In apparatus for enabling a person to breathe fresh air while surrounded with a poisonous or noxious atmosphere, more especially for use in saving miners from being suffocated by choke damp or after damp, the employment of a hood of which the lower portion is formed of a yielding material which may be readily opened out to allow of the hood being passed over the head of the wearer and which may be drawn in around the neck with sufficient accuracy as above defined, substantially as described.

3. In apparatus for enabling a person to breathe fresh air while surrounded with a poisonous or noxious atmosphere, more especially for use in saving miners from being suffocated by choke damp or after damp, the employment of a hood of which the lower portion is constructed of elastic material which may be stretched to allow of the hood being passed over the head of the wearer and will adjust itself around the neck with sufficient accuracy as above defined, substantially as described.

4. Improved Apparatus for Enabling a Person to Breathe Fresh Air while Surrounded with a Poisonous or Noxious Atmosphere, more especially for Use in Saving Miners from being Suffocated by Choke Damp or After Damp, constructed and operating substantially as described with reference to the drawings herewith, and whether either of the modifications of air reservoir illustrated is used or a different construction of air reservoir substantially as described.

Dated this 17th day of April 1894.

STEPHEN WATKINS,
Wolverhampton, Agent for the Applicant.

London: Printed for Her Majesty's Stationery Office, by Darling & Son, Ltd.—1894

WELLCOME LIBRARY INSTITUTE

A.D. 1893. July 19. N° 13,982.

ASH'S Complete Specification.

(1 SHEET)

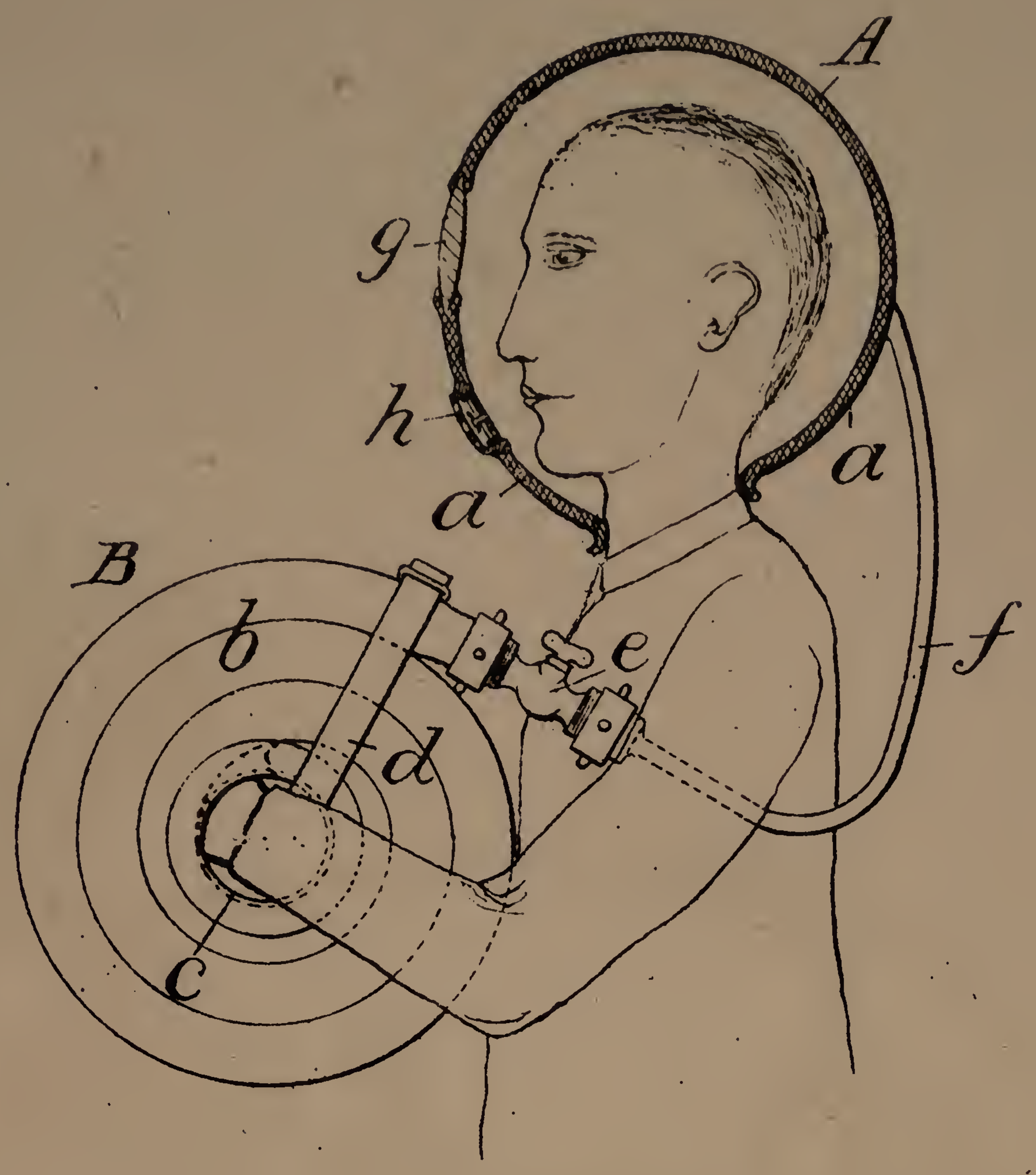

Fig. 1.

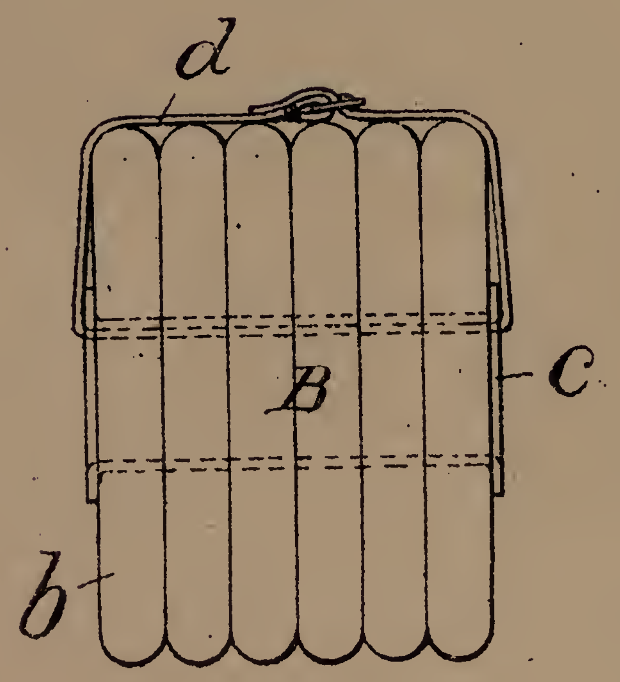

Fig. 2.

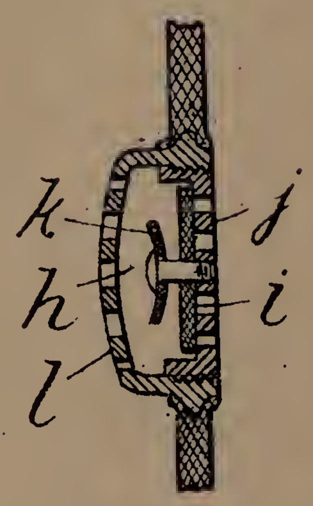

Fig. 3.

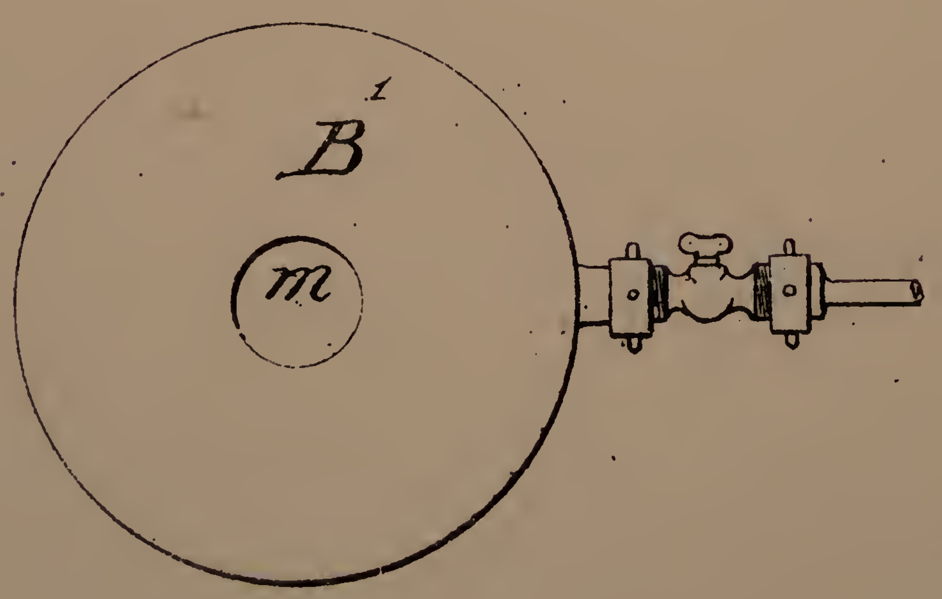

Fig. 4.

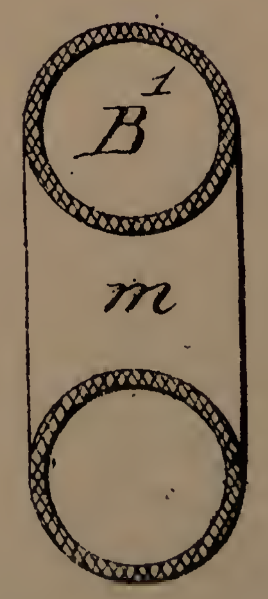

Fig. 5.

[This Drawing is a reproduction of the Original on a reduced scale.]

London. Printed by Darling and Son Ld.
for Her Majesty's Stationery Office. 1894.

Malby & Sons, Photo-Litho.